

## NOTES AND NEWS.

PROF. T. C. PORTER describes and figures a new Californian Aste (*A. Torreyi*) in *Bulletin of Torr. Bot. Club* (Feb.).

A MEMORIAL FUND is being raised for the benefit of the widow and children of the late Professor McNab of Dublin.

PROFESSOR F. L. SCRIBNER has published a key to the genera of the native and cultivated grasses of Tennessee. It is an extract from the *Station Bulletin*.

PROFESSOR J. T. ROTHOCK and Professor W. T. Wilson, of the University of Pennsylvania, have become associate editors of *Forest Leaves*, the organ of the Pennsylvania Forestry Association.—*Garden and Forest*.

MR. H. J. WEBBER (*Am. Nat.* Feb.) suggests the use of peridial cell characters in the genus *Æcidium*, as they are frequently used in *Roeselia*. To emphasize his point he calls attention to the differences in certain species.

MOLISCH finds that the tissue under the epidermis in the fruit of *Capsicum*, which appears to be collenchyma, and has been designated as such, gives all the reactions of cork cells, the walls being completely suberised. He has found the same tissue in *Solanum melongena* var. *coccinea*.<sup>1</sup>

CONWENTZ has found tyloses in the tracheides of the root wood of the tree producing the gum which, fossilized, is called amber. Bits of the wood, found imbedded in the amber, indicate that the tree was a species of *Picea*. Tyloses also occur by the enlargement of the epithelium of the gum passages.

MR. GEORGE MASSEE has published a monograph of the genus *Podaxis* Desv. (*Podaxon* Fr.) in *Jour. Bot.* (February and March). The genus has heretofore been included among the Gastromycetes; but some very young material from South Africa has revealed the unexpected fact that the spores are developed in asci. Of course this removes the genus to the Ascomycetes.

DR. G. N. BEST, in *The Microscope* (Jan.), has given an initial paper on a microscopic study of the seed-wings of *Abietineæ* for diagnostic characters. He is satisfied that they can be so used in many cases, and so be added to the cumulative evidence of other characters. Such characters as "cells markedly curved," "cells straight," "outlines regular," "outlines irregular," are used, and their meaning distinctly pointed out in a plate. The *Abietineæ* form a group in which good diagnostic characters can not be too much multiplied.

PROFESSOR W. E. STONE, of Purdue University, has been investigating the occurrence of cane sugar in the sweet potato. His results are published in *Agricultural Science* (February), and are summarized as follows: The saccharine substance of the sweet potato exists chiefly, if not entirely, in the form of sucrose; the use of the polariscope in the quantitative determination of the same seems possible, such determinations showing 1½ to 2 per cent. of sucrose in the fresh potatoes; the temperature of cooking (baking) inverts the sucrose, and converts more or less of the starch into a soluble form.

Berichte der deutsch. bot. Gesells. vii. 364.

DR. J. M. JANSE gives a voluminous account of the protoplasmic movements in *Caulerpa prolifera* in a recent number of Pringsheim's *Jahrbücher für wissenschaftliche Botanik* (xxi. 163-284, pl. vi-viii). After studying them in all the organs, and their displacement upon wounding, he concludes that their purpose is to distribute the nutritive materials through the plant.

THE NON-CRYSTALIZED coloring matters of lichens have been carefully studied by Dr. E. Bachmann.<sup>1</sup> He finds sixteen which can be readily distinguished by microchemical means, five greens, one blue, four reds and six browns, in the 120 species examined. In one case the coloring matter occurred in drops in the cell contents; in two cases as excretions on the outer surface of the cell membrane; in all the other instances it was found in the cell membrane itself. In the thallus it is almost always in the cortical region. In the apothecium it may be in any part, but is rare in the hypothecium. The walls of the asci are not colored, but the paraphyses. In the cell walls the middle lamella usually contains the most of the color.

THE LAST PART (Part III) of vol. xvii of the Transactions and Proceedings of the Botanical Society of Edinburgh contains the following papers of general interest: Observations on the wood of certain resin-producing trees, *A. Galletly*; Observations on annual increase in girth of trees *David Christison*; A summary of the botanical features of the country traversed by the Afghan Delimitation Commission during 1884-85, *J. E. T. Aitchison*; The flora of the coasts of Lapland and of the Yugor Straits, *Philip Sewell*; Galls of Norway, *J. W. H. Trail*; Enumeration of fungi collected in Hardanger in 1887, *J. W. H. Trail*; Fertilization of *Aspidistra elatior* by slugs, *John Wilson*; Manna from a Persian species of *Astragalus*, *A. Galletly*.

BUSCH GIVES the gist of his paper in the opening paragraph, which we preserve entire and translate as follows: My observations on different green vegetative parts of plants in constant darkness have led very quickly to the conclusion that the destruction of the chlorophyll is not a primary effect of the darkness, but that the chlorophyll itself may persist unaltered for a long time in darkness, provided that the cell remains alive; on the contrary that the destruction of chlorophyll in darkness is only a secondary phenomenon which appears in connection with the dying of the cell on account of the lack of light, as a symptom of the emptying which here precedes death, analogous with the destruction of chlorophyll upon the autumnal emptying of the leaves.

THE FIRST annual report of the director of the Missouri Botanic Garden has been issued. It contains a statement of the changes that are being made in the Garden, or that are in immediate prospect. In order that the development of the plans may be properly noted, a map of the grounds on a large scale is being prepared. The remainder of the report contains a statement of the policy of the trustees (as already published in this journal), the announcement of the establishment of the garden scholarships, and an exposition of the relations of the Shaw School of Botany to the Garden. The director requests from authors copies of their publications for the library, from collectors specimens for the herbarium, and promises all feasible assistance in work calculated to promote botanical knowledge.

<sup>1</sup> Pringsh. Jahrb. f. wiss. Bot. xxi. 1-61, pl. 1.

PETER HENDERSON, widely known as a seedsman, florist and gardener, and the author of two or three widely-read books, died at his home in Jersey City, January 17. He had been in excellent health up to a short time before, when he was taken with the "grip." This attack did not at first appear to be serious, and he was shortly able to be out. But a chill followed, causing an attack of pneumonia which proved quickly fatal. Mr. Henderson was born in Pathhead, a small village near Edinburgh, Scotland, in 1823. He left school at the age of fifteen, with a fair English education, and became apprenticed to a gardener. He became greatly interested in botany, and before he was eighteen years old had twice competed successfully for the medals given by the Botanical Society of Edinburgh for the best herbarium of native and exotic plants. When his four years' apprenticeship was completed he came to New York. In 1847 he began business as a market gardener in Jersey City, and for twenty years or more that was his principal business. But his taste for ornamental gardening grew and he became a florist, and later still a seedsman. The seed business proved most important of all. At the time of his death he was accounted one of the most successful and widely-known seedsmen in the country. The first of his books, entitled "Gardening for Profit," was brought out when he was in the market-gardening business; but it has been revised and later editions published, and proved a most successful work. Over 100,000 copies have been sold. Later he published "Gardening for Pleasure," which also sold well, and still later, his "Handbook of Plants." The last-mentioned book was revised during the last year, and is still in the hands of the binder.—*N. Y. Times (emend.)*.

STRASBURGER'S present statement of the growth of the cell-wall as set forth in his last paper on the subject<sup>1</sup> is as follows: The cell membrane arising upon the division of a cell is formed by the direct alteration of the cell plate, which is of cytoplasmic nature. The same is true of new membrane or new layers formed without division. Membranes or layers arising thus either do or do not grow according as substances from the cell do or do not penetrate them. The most common intrusive substance is the living cell plasma (hyaloplasm) which is altered in the membrane into its own substance. In certain cases the growth of the membrane through direct penetration of substance like the existing membrane is not excluded, but it is not proved. The intrusion of living hyaloplasm takes place especially in those membranes which are becoming cutinised or suberised. It is less certain that it occurs in lignification, but not improbable. The common stratification of membranes is due to apposition, *i. e.*, to the continued successive formation of layers from the peripheral cytoplasm. The surface growth in some cases is due to the stretching or rupture of the older lamellæ and the progressive deposition of new ones. In other cases it is in all probability due to penetration of material into the membrane. That the intrusive substance is hyaloplasm is not certainly proved; that it is dissolved cellulose is not excluded. It would seem from the above that the two long-opposed theories of the growth of the cell wall were in a fair way to be reconciled. Strasburger admits the possibility of intussusception (in the older sense) in some cases, and points out a modified intussusception for other cases of surface growth. Still other cases of surface growth and the ordinary growth in thickness are by apposition.

<sup>1</sup>Histologische Beiträge II.—Ueber das Wachsthum vegetabilischer Zellhäute.